

In the Claims:

Please amend Claims 10-16 and 18-20 as indicated below. The status of all claims is as follows:

1. (Previously Presented) A head actuator for a head provided so as to be accessible to a disk-shaped recording medium rotating above a base, said head actuator comprising:

a main actuator arm having at least one piezoelectric element disposed in the vicinity of a front end of said main actuator arm, wherein said main actuator arm is driven so as to rotate above said base; and

a microactuator arm coupled to the front end of said main actuator arm and indirectly driven by said piezoelectric element so as to swing relative to a back end of said main actuator arm, said head being mounted on the end of said microactuator arm,

said main actuator arm and said microactuator arm being controlled so that said head is moved in a substantially radial direction of said recording medium and positioned over a desired track of said recording medium;

a primary resonant frequency of mechanical characteristics of said main actuator arm being set to 100 Hz or higher;

wherein said main actuator arm has a narrow portion in the vicinity of the front end thereof, said narrow portion having a plurality of slits interdigitally arranged so as to alternately extend from the opposite side edges of said narrow portion, and said at least

one piezoelectric element includes a pair of piezoelectric elements provided on the opposite sides of said narrow portion.

2. (Previously Presented) A head actuator according to claim 1, wherein said main actuator arm includes a ball bearing fixed to said base, said ball bearing having a property of a nonlinear spring, said primary resonant frequency being set according to the rigidity of said nonlinear spring.

3. (Original) A head actuator according to claim 2, wherein the rigidity of said nonlinear spring is increased by increasing a preload in said ball bearing.

4. (Original) A head actuator according to claim 2, wherein the rigidity of said nonlinear spring is increased by increasing a ball diameter in said ball bearing.

5. (Original) A head actuator according to claim 2, wherein the rigidity of said nonlinear spring is increased by increasing the viscosity of a grease used in said ball bearing.

6. (Previously Presented) A head actuator according to claim 1, further comprising an elastic member provided between said main actuator arm and said base, said

primary resonant frequency being set according to the modulus of elasticity of said elastic member.

7. (Original) A head actuator according to claim 1, wherein said primary resonant frequency is set to 150 Hz or higher.

8. (Cancelled)

9. (Previously Presented) A head actuator for a head provided so as to be accessible to a disk-shaped recording medium rotating above a base, said head actuator comprising:

a main actuator arm having at least one piezoelectric element disposed in the vicinity of a front end of said main actuator arm, wherein said main actuator arm is driven so as to rotate above said base;

a narrow portion disposed on said main actuator arm adjacent said piezoelectric element, said narrow portion having a plurality of slits which permit the extension and retraction of said main actuator arm with the expansion and retraction of said piezoelectric element;

a microactuator arm indirectly driven by said piezoelectric element so as to swing relative to a back end of said main actuator arm, said head being mounted on the end of said microactuator arm,

said main actuator arm and said microactuator arm being controlled so that said head is moved in a substantially radial direction of said recording medium and positioned over a desired track of said recording medium;

a primary resonant frequency of mechanical characteristics of said main actuator arm being set to 100 Hz or higher.

10. (Currently Amended) A head actuator according to ~~claim 1~~, claim 9, wherein said main actuator arm includes a ball bearing fixed to said base, said ball bearing having a property of a nonlinear spring, said primary resonant frequency being set according to the rigidity of said nonlinear spring.

11. (Currently Amended) A head actuator according to ~~claim 9~~, claim 10, wherein the rigidity of said nonlinear spring is increased by increasing a preload in said ball bearing.

12. (Currently Amended) A head actuator according to ~~claim 9~~, claim 10, wherein the rigidity of said nonlinear spring is increased by increasing a ball diameter in said ball bearing.

13. (Currently Amended) A head actuator according to ~~claim 9~~, claim 10, wherein the rigidity of said nonlinear spring is increased by increasing the viscosity of a grease used in said ball bearing.

14. (Currently Amended) A head actuator according to ~~claim 1~~, claim 9, further comprising an elastic member provided between said main actuator arm and said base, said primary resonant frequency being set according to the modulus of elasticity of said elastic member.

15. (Currently Amended) A head actuator according to ~~claim 1~~, claim 9, wherein said primary resonant frequency is set to 150 Hz or higher.

16. (Currently Amended) A head actuator according to ~~claim 1~~, claim 9, wherein said plurality of slits are interdigitally arranged so as to alternately extend from opposite side edges of said narrow portion.

17. (Previously Presented) A head actuator for a head provided so as to be accessible to a disk-shaped recording medium rotating above a base, said head actuator comprising:

a main actuator arm having two piezoelectric elements disposed in the vicinity of a front end of said main actuator arm, wherein said main actuator arm is driven so as to rotate about said base;

a narrow portion disposed between said piezoelectric elements and having a plurality of slits which permit the extension and retraction of said main actuator arm with the expansion and retraction of said piezoelectric element;

a microactuator arm indirectly driven by said piezoelectric element so as to swing relative to a back end of said main actuator arm, said head being mounted on the end of said microactuator arm,

said main actuator arm and said microactuator arm being controlled so that said head is moved in a substantially radial direction of said recording medium and positioned over a desired track of said recording medium;

a primary resonant frequency of mechanical characteristics of said main actuator arm being set to 100 Hz or higher.

18. (Currently Amended) A head actuator according to ~~claim 16~~, claim 17, wherein said main actuator arm includes a ball bearing fixed to said base, said ball bearing having a property of a nonlinear spring, said primary resonant frequency being set according to the rigidity of said nonlinear spring.

19. (Currently Amended) A head actuator according to ~~claim 17,~~
claim 18, wherein the rigidity of said nonlinear spring is increased by increasing a preload in
said ball bearing.

20. (Currently Amended) A head actuator according to ~~claim 17,~~
claim 18, wherein the rigidity of said nonlinear spring is increased by increasing a ball
diameter in said ball bearing.

21. (Previously Presented) A head actuator according to claim 17,
wherein said plurality of slits are interdigitally arranged so as to alternately extend from
opposite side edges of said narrow portion.